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EXPEDITED PROCEDURE

To: Examiner Quang Vu  
Group Art Unit No. 2811  
U. S. P. T. O.

Facsimile No. 703-872-9306

From: Phillip E. Miller

Facsimile No. 703-761-2375

Re: Filing of Statement of Substance of Interview  
U. S. Patent Application Serial No. 09/828,862  
Our Ref: FUS.019DIV

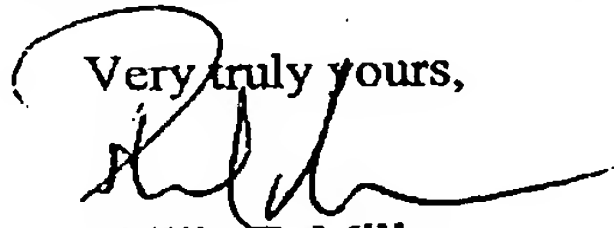
Dear Examiner Vu:

Thank you and Mr. Loke again for your helpful comments provided during our personal interview conducted on March 24, 2005.

Enclosed please find our Statement of Substance of Interview which summarizes our arguments made during the interview.

Thank you in advance for your kind consideration of this case.

Very truly yours,

  
Phillip E. Miller

PEM/lmb  
Enclosure

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**In re Application of**

Kiyotaka Imai

**Serial No.:** 09/828,862      **Group Art Unit:** 2811

**Filed:** April 10, 2001      **Examiner:** Vu, Quang D.

**For:** SEMICONDUCTOR DEVICE AND METHOD FOR MANUFACTURING SAME

Honorable Commissioner of Patents  
Alexandria, VA 22313-1450

**STATEMENT OF SUBSTANCE OF INTERVIEW**

Sir:

Applicant provides herewith his Statement of Substance of the telephone interview which was conducted between the Examiner, Examiner Steven Loke and Applicant's undersigned counsel on March 24, 2005.

1. **Brief description of nature of exhibits/demonstrations:** N/A
2. **Claims discussed:** 3, 8, 22
3. **Prior art discussed:** Iwata, Wu
4. **Proposed amendments discussed:** See (5) below.
5. **Arguments made by Applicant's representative:**

Applicant briefly described the invention and its advantages over conventional methods. Specifically, Applicant reiterated that unlike conventional methods, the claimed invention forms a semiconductor device by implanting arsenic is at a first acceleration energy (e.g., a relatively low energy) to form source/drain regions and then (e.g., after implanting the arsenic ions), continuously implanting phosphorous ions in the arsenic ion implanted regions. This allows the claimed invention to lower the acceleration energy of implantation in order to eliminate a reverse short channel effect, without resulting in an undesirable increase in p-n junction leakage current. Nowhere is this concept taught or suggested by Iwata, Wu or the alleged Iwata/Wu combination.

Applicant also reiterated that neither Iwata nor Wu are intended to address the problem of

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reverse short channel effect, but instead merely teach to protect from the short channel effect, which is not the same as a reverse short channel effect.

Moreover, Applicant pointed out that even assuming (arguendo) that the references somehow suggest implanting phosphorus in the arsenic ions implanted regions, nowhere do the references teach or suggest implanting phosphorous ions using the same photoresist mask as the photoresist mask used in implanting the arsenic ions. Applicant directed the Examiner's and Mr. Loke's attention to the Application at page 18, lines 20-25, and Figure 10I, and explained that this feature allows the claimed invention to conveniently form the source/drain main region 46 and source/drain buffer region 48.

Applicant then referred to Figures 6(f)-6(k) (and the corresponding text) in Iwata which illustrate phosphorus ions 319 being implanted using photoresist 318 as a mask, the photoresist 318 is thereafter removed, and later another photoresist (e.g., photoresist 329) which is different from the photoresist 318 used to implant the phosphorus, is formed and arsenic ions 330 are implanted.

Applicant then pointed out that Wu certainly does not teach or suggest implanting phosphorous ions (e.g., in an arsenic implanted region) using the same photoresist mask as the photoresist mask used in implanting the arsenic ions.

Applicant then briefly pointed out that newly added claims 23-25 include additional features that are not taught or suggested by the prior art references (e.g., implanting phosphorus ions immediately after implanting arsenic ions without an intervening step, implanting phosphorus ions and arsenic ions in the same surface, and buffer regions that further include arsenic ions, an arsenic ion concentration in the buffer regions being greater than a phosphorus ion concentration in buffer region).

6. Other pertinent matters: N/A

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7. **Result of Interview:** See Examiner's Interview Summary Sheet.

Respectfully Submitted,

Date:

3/29/05



Phillip E. Miller

Reg. No. 46,060

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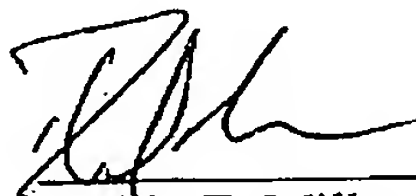
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**CERTIFICATE OF FACSIMILE TRANSMISSION**

I hereby certify that the foregoing was filed by facsimile with the United States Patent and Trademark Office, Examiner Vu, Quang, Group Art Unit #2811 at fax number (703) 872-9306 this 29th day of March, 2005.



Phillip E. Miller

Reg. No. 46,060